



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/593,297

09/18/2006

Gyuyoung Han

126587-06112471

8438

22429

7590

06/16/2008

LOWE HAUPTMAN HAM & BERNER, LLP  
1700 DIAGONAL ROAD  
SUITE 300  
ALEXANDRIA, VA 22314

EXAMINER

LIU, HARRY K

ART UNIT

PAPER NUMBER

3662

MAIL DATE

DELIVERY MODE

06/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,297	<b>Applicant(s)</b> HAN ET AL.	
	<b>Examiner</b> HARRY LIU	<b>Art Unit</b> 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-22 and 24-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-22, 24-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed (3/10/2008). Claim(s) (8 and 23) has been canceled without prejudice. Claims (1-7, 9-22, 24-38) are pending and an action on the merits is as follows.

The indicated allowability of claims 8 and 23 are withdrawn in view of the newly discovered reference(s) to Honkasalo (6101176). Rejections based on the newly cited reference(s) follow.

---

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-7, 9-22, 24-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant is required to be more specific in defining pilot strength vs. CDMA parameters setting while **comparing** to a predetermined value with **unit and parameter listed**.

In a typical CDMA system,  $E_c/I_o$  is referred as the pilot strength. An  $E_c/I_o$  of -5 9dBm) is actually stronger than -7 while  $T\_ADD$  of 12 is actually a more strict window than 14 since they represent -12 dB, -14dB respectively.

#### ***Claim Rejections - 35 USC § 103***

Art Unit: 3662

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 9-12, 14, 17-22, 24-28, 30, 33-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Stein (2003/0008669) or Lin (2004/0219930) in view of Honkasalo (6101176).

Regarding claims 1-2, 10, 17-18, 26, 33, Stein discloses a terminal positioning in a global positioning system (GPS) satellite-invisible area (repeaters are commonly used in indoor which is satellite-invisible, paragraph 0007) in a code division multiple access (CDMA) or **W-CDMA** (paragraph 0006) mobile communication network by using a terminal, a plurality of location detectors (LDs) (RUs, Fig. 1b) for generating and sending offsets (PN generator, paragraph 0070), a position determination entity (PDE, FIG. 1) for controlling a position determination of the terminal and an LD mapping server including a position information database (PDE), comprising the steps of:

(a) allowing the terminal which received a positioning request to obtain a reference pilot signal (different PN offset, delayed, paragraph 0017 & 0071) of a base transceiver station or a repeater and LD pilot signals generated from the location detectors (PN generator, paragraph 0070);

(b) transmitting information on the reference pilot signal or the LD pilot signals to the PDE by using a pilot strength measurement message (PSMM) if the reference pilot signal or the LD pilot signals are received with a strength not smaller than a

predetermined value; CDMA network used PSMM to search for strong PN and add it into the active/candidate set (**T\_ADD**);

(c) calculating a chip-based pseudo noise code phase from the PSMM transmitted to the PDE (repeater retransmit with delay based on chips in CDMA, paragraph 0017) (FIG. 5a-5d);

(d) transmitting the pseudo noise code phase to the LD mapping server if the pseudo noise code phase calculated at step (c) is a phase of one of positioning pseudo noise codes allocated for the position determination (paragraph 0010); and

(e) obtaining position information of the terminal by using the pseudo noise code phase transmitted to the LD mapping server (PDE).

Stein or Lin does not specifically disclose LD pilot signals are transmitted with a strength which is lower than that of the reference pilot signal. However, Honkasalo teaches an outdoor BS transmits relatively higher power than an indoor BS (col. 2, lines 55-67). Plus, it is known that outdoor site needs to handle much larger geographical serving radius than a typical indoor site. It would have been obvious to modify Stein or Lin with Honkasalo in order to contain the repeated signals indoor.

Regarding claims 3-7, 19-22, 34, Stein discloses at least two positioning pseudo noise codes are predetermined (FIG. 5c-5d) and the LD pilot signals are generated by intentionally **adding** offsets to the positioning pseudo noise codes and the offset is not larger than 64 chips(FIG. 5c-5d) .

Regarding claims 9, 24-25, Stein discloses each LD pilot signal includes a time delay component ( chip) which is used to identify said each LD pilot signal as a signal

with a first arrival path if said each LD pilot signal is received in the terminal (FIG. 5a-5d).

Regarding claims 11-12, 27-28, Stein discloses the information transmitted on reference pilot signals are delayed version of BTS pilot which certainly includes phase and measurement error of PN code.

Regarding claims 14, 30, Stein discloses repeater identification with PN offset (Abstract), repeaters database is typically saved in a server/database specifying its address with names. It would have been obvious to modify Stein with address and name in order to differentiate easier.

5. Claims 13, 15, 29, 31, 35, 37, are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein (2003/0008669) or Lin in view of Honkasalo (6101176), as applied to claims 1, 18 rejection above, and further in view of Sih (6665539).

Regarding claims 13, 15, 29, 31, 35, 37, Stein as modified with Honkasalo, as applied to claims 1, 18 rejections above, discloses all claim limitations except for specifying phase is measured and transmitted on a 1/16 chip basis or traffic state enabling. However, Sih teaches the use of 1/16 chip increments in differentiating delay/phase transition (col. 4. lines 23-31) and location service. It would have been obvious to modify Stein with Sih by incorporating 1/16 chip basis and location service (which needs to put handset in traffic mode) in order to differentiate delay information and receive location assistance.

Art Unit: 3662

6. Claims 16, 32, 36, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein (2003/0008669) Lin in view of Honkasalo (6101176), as applied to claims 1, 18 rejection above, and further in view of Rajkotia (2004/0121774).

Regarding claims 16, 32, 36, 38, Stein as modified with Honkasalo, as applied to claims 1, 18 rejections above, discloses all claim limitations except for network sending PMRO to request terminal responds with PSMM.

However, Rajkotia teaches sending PMRO for PSMM measuring (paragraph 0071). It would have been obvious to modify Stein with Rajkotia by sending PMRO in order to trigger the terminal to do PSMM.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Liu whose telephone number is 571-270-1338.

The examiner can normally be reached on Monday -Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, please **leave a voice message** with application serial number and nature of call, a response within 24 hours can be expected during regular business days. Also, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-270-2338.

Art Unit: 3662

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Harry Liu  
Examiner, Art Unit 3662

June 16, 2008

/Thomas H. Tarcza/  
Supervisory Patent Examiner, Art Unit 3662